

WHAT IS CLAIMED IS:

1. A printing apparatus in which a carriage equipped with a printhead having a plurality of printing elements arranged in a predetermined direction is made to scan  
5 across a printing medium in a direction that intersects the direction in which the printing elements are arranged, thereby performing printing on the medium, said apparatus comprising:

dividing means for dividing the printing elements  
10 into a plurality of blocks each consisting of a predetermined number of successive printing elements;

a receive buffer for receiving print data that has been transmitted in raster form;

a print buffer for dividing and storing the data,  
15 which has been stored in said receive buffer, in a plurality of areas corresponding to the blocks;

data shifting means for shifting, in accordance with printing elements used in the scan, the data in the corresponding area of said print buffer; and

20 control means for establishing correspondence between the areas of said print buffer and respective ones of the blocks in accordance with distance over which the printing medium is transported after the scan, and calculating the amount of the shift.

25 2. The apparatus according to claim 1, wherein each area of said print buffer stores data to be supplied to printing elements of the predetermined number in one

scan.

3. The apparatus according to claim 1, wherein said control means has a table indicating correspondence between the areas of said print buffer and respective  
5 ones of the blocks, and said table is updated after each scan.

4. The apparatus according to claim 1, wherein the plurality of areas of said print buffer is at least twice the number of blocks.

10 5. The apparatus according to claim 1, wherein a flag indicating status of use is provided for each area of said print buffer.

6. The apparatus according to claim 1, further comprising print-buffer management means for performing  
15 management in such a manner that each area of said print buffer is used cyclically in a predetermined order.

7. The apparatus according to claim 1, wherein a plurality of the printheads are mounted on the carriage and each of these printheads performs color printing by  
20 printing colors that differ from one another.

8. The apparatus according to claim 7, wherein a plurality of said print buffers are provided in association with each of the printheads.

9. The apparatus according to claim 1, wherein when  
25 multiple-pass printing in which each print area is printed by a plurality of scans is performed, transport distance of the printing medium is capable of being set

pass by pass.

10. The apparatus according to claim 1, wherein the printing head is an ink-jet printing head which performs printing by ejecting ink.

5 11. The apparatus according to claim 10, wherein the printhead ejects ink by utilizing thermal energy, said printhead having a thermal energy transducer for generating thermal energy applied to the ink.

12. A printing method for performing printing by  
10 causing a carriage equipped with a printhead having a plurality of printing elements arranged in a predetermined direction to scan across a printing medium in a direction that intersects the direction in which the printing elements are arranged, thereby performing  
15 printing on the medium, said method comprising:

    a dividing step of dividing the printing elements into a plurality of blocks each consisting of a predetermined number of successive printing elements;

    a receive step of storing print data, which has  
20 been transmitted in raster form, in a receive buffer;

    a buffer step of dividing and storing the data, which has been stored in the receive buffer, in a print buffer having plurality of areas corresponding to the blocks;

25      a data shifting step of shifting, in accordance with printing elements used in the scan, the data in the corresponding area of the print buffer; and

a control step of establishing correspondence between the areas of the print buffer and respective ones of the blocks in accordance with distance over which the printing medium is transported after the scan,  
5 and calculating the amount of the shift.

13. The method according to claim 12, wherein each area of the print buffer stores data to be supplied to printing elements of the predetermined number in one scan.

10 14. The method according to claim 12, wherein a table indicating correspondence between the areas of the print buffer and respective ones the blocks is used at said control step, and said table is updated after each scan.

15 15. The method according to claim 12, wherein the plurality of areas of the print buffer is at least twice the number of blocks.

16. The method according to claim 12, wherein a flag indicating status of use is provided for each area of the print buffer.

20 17. The method according to claim 12, further comprising a print-buffer management step of performing management in such a manner that each area of the print buffer is used cyclically in a predetermined order.

25 18. The method according to claim 12, wherein when multiple-pass printing in which each print area is printed by a plurality of scans is performed, transport distance of the printing medium is capable of being set

pass by pass.

19. A program for controlling a printing apparatus in which a carriage equipped with a printhead having a plurality of printing elements arranged in a  
5 predetermined direction is made to scan across a printing medium in a direction that intersects the direction in which the printing elements are arranged, thereby performing printing on the medium, said program having program code corresponding to:

10 a dividing step of dividing the printing elements into a plurality of blocks each consisting of a predetermined number of successive printing elements;

a receive step of storing print data, which has been transmitted in raster form, in a receive buffer;

15 a buffer step of dividing and storing the data, which has been stored in the receive buffer, in a print buffer having plurality of areas corresponding to the blocks;

a data shifting step of shifting, in accordance  
20 with printing elements used in the scan, the data in the corresponding area of the print buffer; and

a control step of establishing correspondence between the areas of the print buffer and respective ones of the blocks in accordance with distance over  
25 which the printing medium is transported after the scan, and calculating the amount of the shift.

20. A storage medium storing a program for controlling

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a printing apparatus in which a carriage equipped with a printhead having a plurality of printing elements arranged in a predetermined direction is made to scan across a printing medium in a direction that intersects  
5 the direction in which the printing elements are arranged, thereby performing printing on the medium, said storage medium storing program code corresponding to:

10 a dividing step of dividing the printing elements into a plurality of blocks each consisting of a predetermined number of successive printing elements;

a receive step of storing print data, which has been transmitted in raster form, in a receive buffer;

15 a buffer step of dividing and storing the data, which has been stored in the receive buffer, in a print buffer having plurality of areas corresponding to the blocks;

20 a data shifting step of shifting, in accordance with printing elements used in the scan, the data in the corresponding area of the print buffer; and

a control step of establishing correspondence between the areas of the print buffer and respective ones of the blocks in accordance with distance over which the printing medium is transported after the scan,  
25 and calculating the amount of the shift.